

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY


(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 07 FEB 2006

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PCT

Applicant's or agent's file reference P8 161 PCT/EU		<b>FOR FURTHER ACTION</b>		See Form PCT/PEA/416
International application No. PCT/IB2005/000575		International filing date (day/month/year) 08.03.2005	Priority date (day/month/year) 22.03.2004	
International Patent Classification (IPC) or national classification and IPC B65D85/804				
Applicant AROMA SYSTEM SRL				
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 4 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau a total of 15 sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>				
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input checked="" type="checkbox"/> Box No. VIII Certain observations on the international application</p>				
Date of submission of the demand 11.08.2005		Date of completion of this report 07.02.2006		
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016		Authorized Officer  Bridault, A  Telephone No. +31 70 340-3224		



**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/IB2005/000575

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**Box No. I Basis of the report**

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1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
  - ☐ publication of the international application (under Rule 12.4)
  - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements**\* of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

**Description, Pages**

1, 1a, 2, 2a, 2b, 3-7                      received on 11.08.2005 with letter of 11.08.2005

**Claims, Numbers**

1-4    received on 11.08.2005 with letter of 11.08.2005

**Drawings, Sheets**

1/4-4/4                                        received on 11.08.2005 with letter of 11.08.2005

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☒ The amendments have resulted in the cancellation of:
- ☐ the description, pages
  - ☒ the claims, Nos. 5, 6
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing (*specify*):
  - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
  - ☐ the claims, Nos.
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing (*specify*):
  - ☐ any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT  
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**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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1. Statement

Novelty (N)	Yes: Claims	1-4
	No: Claims	
Inventive step (IS)	Yes: Claims	1-4
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-4
	No: Claims	

2. Citations and explanations (Rule 70.7):

**see separate sheet**

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**Box No. VIII Certain observations on the international application**

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The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

**see separate sheet**

**INTERNATIONAL PRELIMINARY  
REPORT ON PATENTABILITY  
(SEPARATE SHEET)**

International application No.

PCT/IB2005/000575

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

Reference is made to the following documents:

D1: DE 35 04 441 A1

D2: EP-A-1 273 528

D3: US 2003/077359 A1

The documents D1 and D2 are regarded as being the closest prior art to the subject-matter of claim 1, and show coffee pods from which the subject-matter of claim 1 differs in that a central part of the pod is slightly sunken in relation to the sealing plane.

The subject-matter of claim 1 is therefore new (Article 33(2) PCT).

The problem to be solved by the present invention may be regarded as improving the quality of the beverage brewed from the pod.

The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) because none of the available prior art documents shows a pod having a sunken central part. D3 shows a sunken coffee pod, but states that only the compacted coffee is sunken, not the pod itself (see last sentence of paragraph 66).

Claims 2-4 are dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

**Re Item VIII**

**Certain observations on the international application**

Claims 3 and 4 lack clarity because they mention a lower, resp. equal, weight, without mentioning to which standard these weights have to be compared.

**DR. STEPHAN G. BESZÉDES**  
PATENTANWALT  
MÜNCHENER STR. 80a  
D-85221 DACHAU bei MÜNCHEN  
TEL 08131/735371

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P 8 161 PCT/EU

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**FILTER PAPER POD FOR COMPACTED COFFEE PORTIONS**

The present invention relates to a filter paper pod for compacted coffee portions having a shape that is asymmetrical in relation to a sealing plane of a circular peripheral zone.

Such a filter paper pod is shown in DE 35 04 441 A1 as well as in EP 1 273 528 A1.

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~~FILTER PAPER POD FOR COMPACTED COFFEE PORTIONS~~**Field of the art**

The present invention relates <sup>generally</sup> to the technique of manufacturing compacted pods and specifically regards filter paper pods for packaging portions of ground coffee. International reference classification: B 65 b

**State of the art**

The use of filter paper pods to package portions of ground products of varying particle size, such as ground coffee, ground barley, tea or other similar substances, is well known in the art.

Standardized filter paper pods, which have a certain degree of compacting and display a lenticular shape that is symmetrical in relation to the plane of the flat circular peripheral sealing zone, are likewise known. Within said flat peripheral zone the symmetrical pods display a characteristic rounded circular edge. During actual use of said standardized symmetrical pods, which have a certain degree of compacting, a drawback is manifested in that water tends initially to pass along the rounded edge rather than being forced through the central compacted part containing the product. This has the effect of reducing the quality of the brew obtained with said standardized symmetrical compacted pods.

In fact, along their rounded circular peripheral edge, said pods do not fit

tightly to the filter holder of the machine that makes espresso; as a result the water tends initially to pass through the gap formed around the edge rather than through the body of the pod.

It is thus evident that the resulting brew will have a lower quality, precisely because of the greater presence of water that has not passed through the central part of the standardized symmetrical pod.

Asymmetrical pods having a very soft exterior are also known; as they are not compacted, they must be larger in size in order to be packed with the same product weight as standardized symmetrical compacted pods.

The problem to be solved, therefore, is to produce compacted filter paper pods having a conformation such as to prevent water from escaping, at the start of the brewing process, into the gap formed at the edge of the pod and ensure that it is instead forced through the central part containing product. The solution proposed by the present invention solves all of the problems inherent in compacted filter paper pods having a standardized symmetrical shape and makes it possible to obtain espresso coffee of excellent quality.

—————> 2a

#### ~~DESCRIPTION~~

~~The invention will now be explained referring to the appended drawings, which serve solely illustrative purposes and in no way limit the scope of the invention itself.~~

2a

The problem is solved by a paper filter pod as mentioned at the outset wherein a central part thereof is slightly sunken in relation to said plane.



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~~tightly to the filter holder of the machine that makes espresso, as a result~~  
the water tends initially to pass through the gap formed around the edge  
rather than through the body of the pod.

It is thus evident that the resulting brew will have a lower quality, precisely  
because of the greater presence of water that has not passed through the  
central part of the standardized symmetrical pod.

Asymmetrical pods having a very soft exterior are also known; as they  
are not compacted, they must be larger in size in order to be packed with  
the same product weight as standardized symmetrical compacted pods.

The problem to be solved, therefore, is to produce compacted filter paper  
pods having a conformation such as to prevent water from escaping, at  
the start of the brewing process, into the gap formed at the edge of the  
pod and ensure that it is instead forced through the central part  
containing product. The solution proposed by the present invention solves  
all of the problems inherent in compacted filter paper pods having a  
standardized symmetrical shape and makes it possible to obtain  
~~espresso coffee of excellent quality.~~

#### **DESCRIPTION**

The invention will now be explained referring to the appended drawings,  
which serve solely illustrative purposes and in no way limit the scope of  
the invention itself.

~~Figure 1 shows a diametral cross-section of a compacted pod (A), which displays a shape that is asymmetrical in relation to the plane (P) of the flat circular peripheral sealing zone (Z). It may be noted that the central part (C) of the asymmetrical compacted pod (A) is coplanar with said peripheral sealing plane (P). It should also be noted that the filter paper in the central part (C) is in contact with the underlying portion of coffee contained inside the asymmetrical pod (A).~~

Figure 1 shows a diametral cross-section of an asymmetrical compacted pod whose central part (C') is slightly concave and sunken in relation to the plane (P) of the flat circular peripheral sealing zone (P). It should be noted that the filter paper in the central part (C') is in contact with the underlying portion of coffee contained inside the asymmetrical pod.

~~Figure 2 shows a diametral cross-section of an asymmetrical compacted pod having the same coplanar external shape as shown in figure 1. It should however be noted that the coffee inside the pod does not adhere to the overlying filter paper in the central part (C), which is coplanar with the plane (P) of the circular peripheral sealing zone (Z).~~

Figure 2 shows a diametral cross-section of an espresso machine. It illustrates the initial behaviour of water during the brewing process with a standardized symmetrical compacted pod (E).

It should be noted that, at the start of the brewing process, water tends to

flow into the gap (G) formed along the rounded peripheral edge where the edges of the top and bottom sections of the filter holder (S; I) do not perfectly match the shape of the pod (E).

In fact, around the peripheral edge there is a gap (G) which allows the water to flow downward at the start of the brewing process, without passing through the body of the pod (E). As the brewing process continues, the initial gap (G) is filled due to the swelling of the wet pod.

This situation results in a poorer quality brew precisely because the initial water fails to pass through the body of the symmetrical compacted pod (E).

Figure 3 shows a diametral cross-section of an espresso machine. It illustrates the initial behaviour of water during the brewing process with an asymmetrical compacted pod (A) whose central part (C) is coplanar with the plane (P) of the circular peripheral sealing zone (Z).

Also warranting particular attention is the fact that the diameter (D) of the cavity in the section (S) forming the top part of the brewing compartment is smaller than the diameter defining the circular zone (C) inside the peripheral sealing zone (Z) of the pod (A).

It should be noted that the upper filter holder section (S) closes to form a seal not only with the lower section (I) of the pod brewing compartment, but also with part of the central zone (C) of the body of the asymmetrical

pod (A).

This feature prevents water from escaping, even during the initial phase of brewing, into the gap (G) existing around the edge of the pod and forces the water through the central part, thereby ensuring, right from the start of the process, a homogenous, high quality brew.

Figure 4 is analogous to figure 3 and serves to highlight that a high quality brew may also be obtained using compacted pods (A') packed with a lower product weight.

The improvement in the brewing process prevents the undesired initial flow of water through the gap (G) and thus ensures greater uniformity of the brew, which is of good quality.

An extended series of practical trials has demonstrated that good quality espresso may also be obtained with compacted pods containing reduced quantities of coffee.

The figures also highlight the simplicity of producing the compacted pod of the present industrial invention.

In the figures the individual details are marked as follows:

A indicates an asymmetrical compacted pod containing the same quantity of product as a standardized symmetrical compacted pod (E).

A' indicates an asymmetrical compacted pod containing a smaller quantity of product.

C indicates the flat central part of an asymmetrical pod.

C' Indicates the slightly concave part of an asymmetrical pod.

D indicates the diameter of the cavity in the upper section (S) of the filter holder .

E indicates a compacted pod having a standardized symmetrical shape .

G indicates the gap formed between the edge of the pod and the brewing compartment.

I indicates the lower section of the pod brewing compartment.

P indicates the plane of the peripheral sealing zone of a pod.

S indicates the upper section of the pod brewing compartment.

Z is the coplanar edge of a peripherally sealed pod.

The invention naturally lends itself to different embodiments as regards both the dimensions and structural proportions, as well as the technological choices in respect of the materials to be used in the manufacturing process.

It is evident that the pod diameter, thickness and degree of compactness will be adapted to market demands.

The innovative concept underlying the present invention essentially consists in the asymmetric shape of the compacted pod and the substantial coplanarity between the central part (C) and the plane (P) of the circular peripheral sealing zone (Z) of the pod.

Now that the inventive combinations of the present invention have been made apparent, anyone with average skill in the art may produce, by means of simple and obvious practical deductions, without expending any inventive effort, asymmetrical compacted pods reproducing the original characteristics of the present invention as substantially described, illustrated and claimed below.

Claims

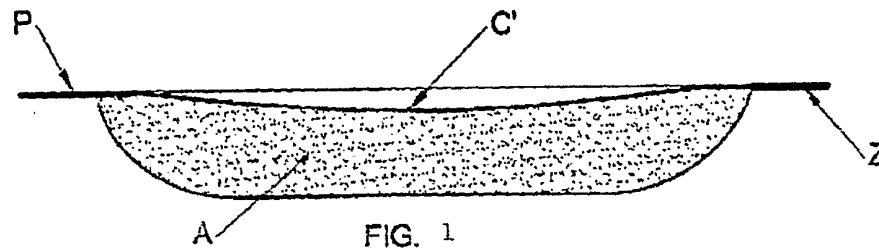
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Claims

1. Filter paper pod (A) for compacted coffee portions having a shape that is asymmetrical in relation to a sealing plane (P) of a circular peripheral zone (Z), characterized in that a central part (C') is slightly sunken in relation to said plane (P).
2. Filter paper pod of claim 1, characterized in that the coffee packed inside the pod does not adhere to the overlying central part (C') of the asymmetric pod (A).
3. Filter paper pod of claim 1 or 2, characterized by having a degree of compacting calibrated so as to obtain good quality espresso coffee with portions of lower weight.
4. Filter paper pod of any of claims 1 to 3, characterized by having a degree of compacting calibrated so as to obtain good quality espresso coffee with portions equal weight.





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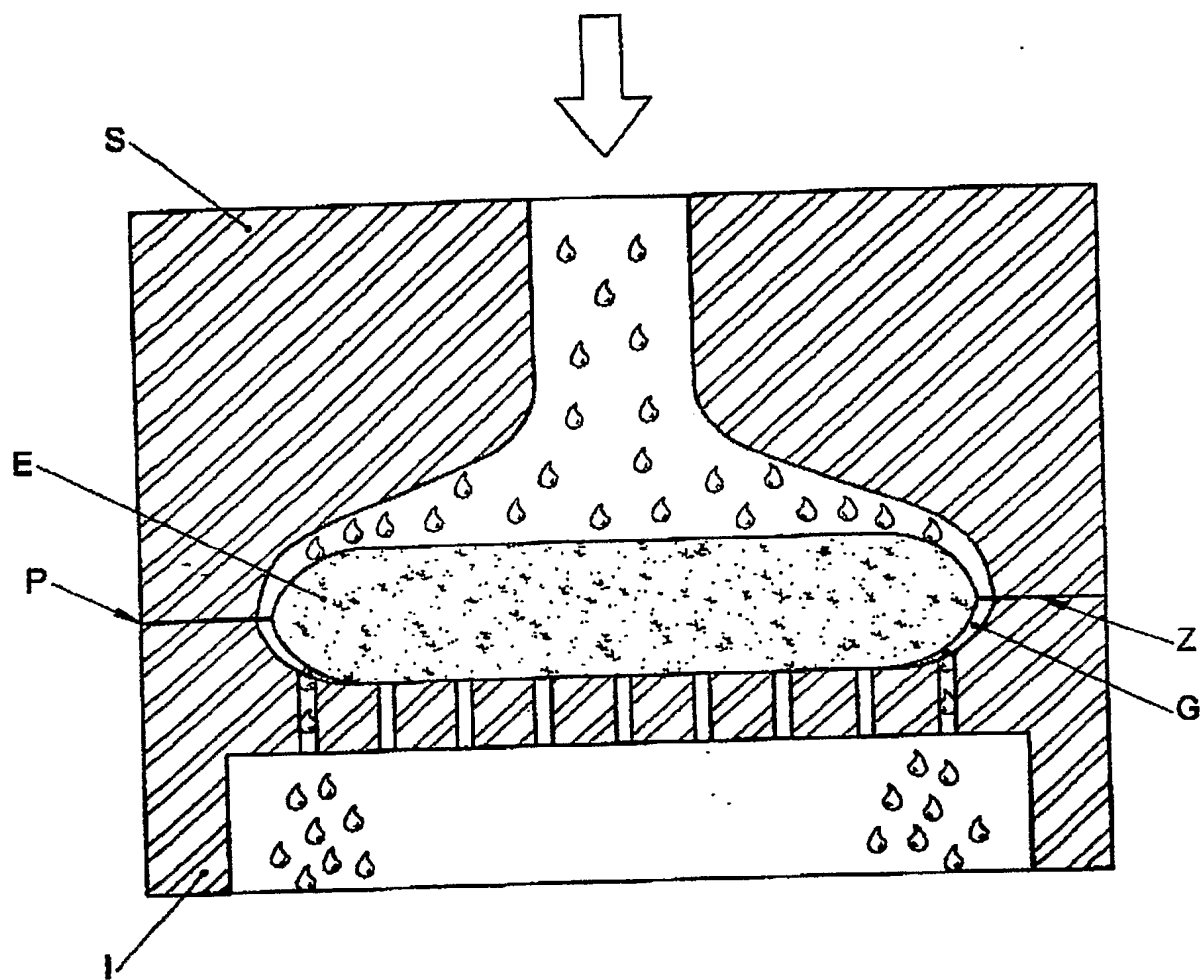


FIG. 2

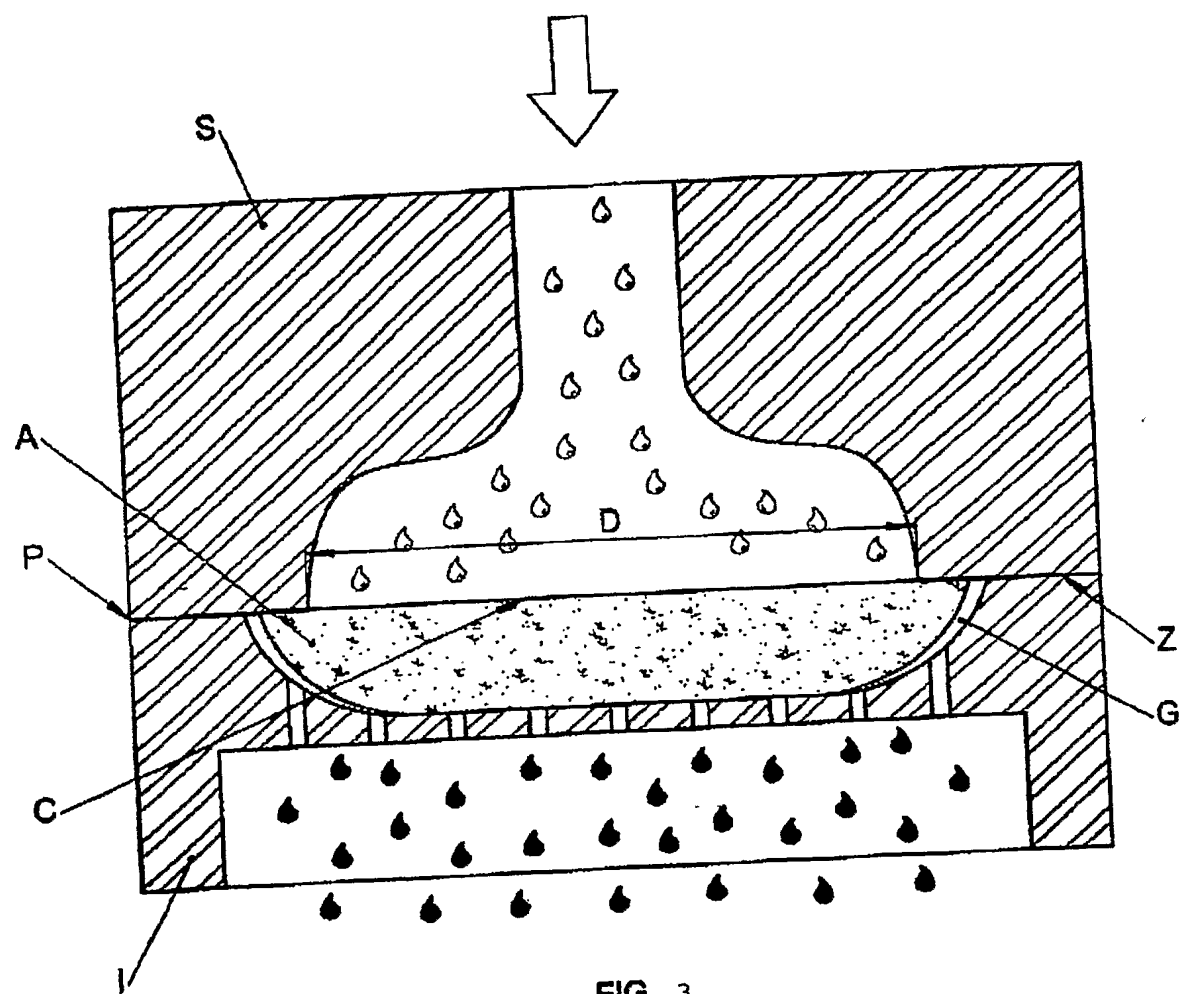


FIG. 3

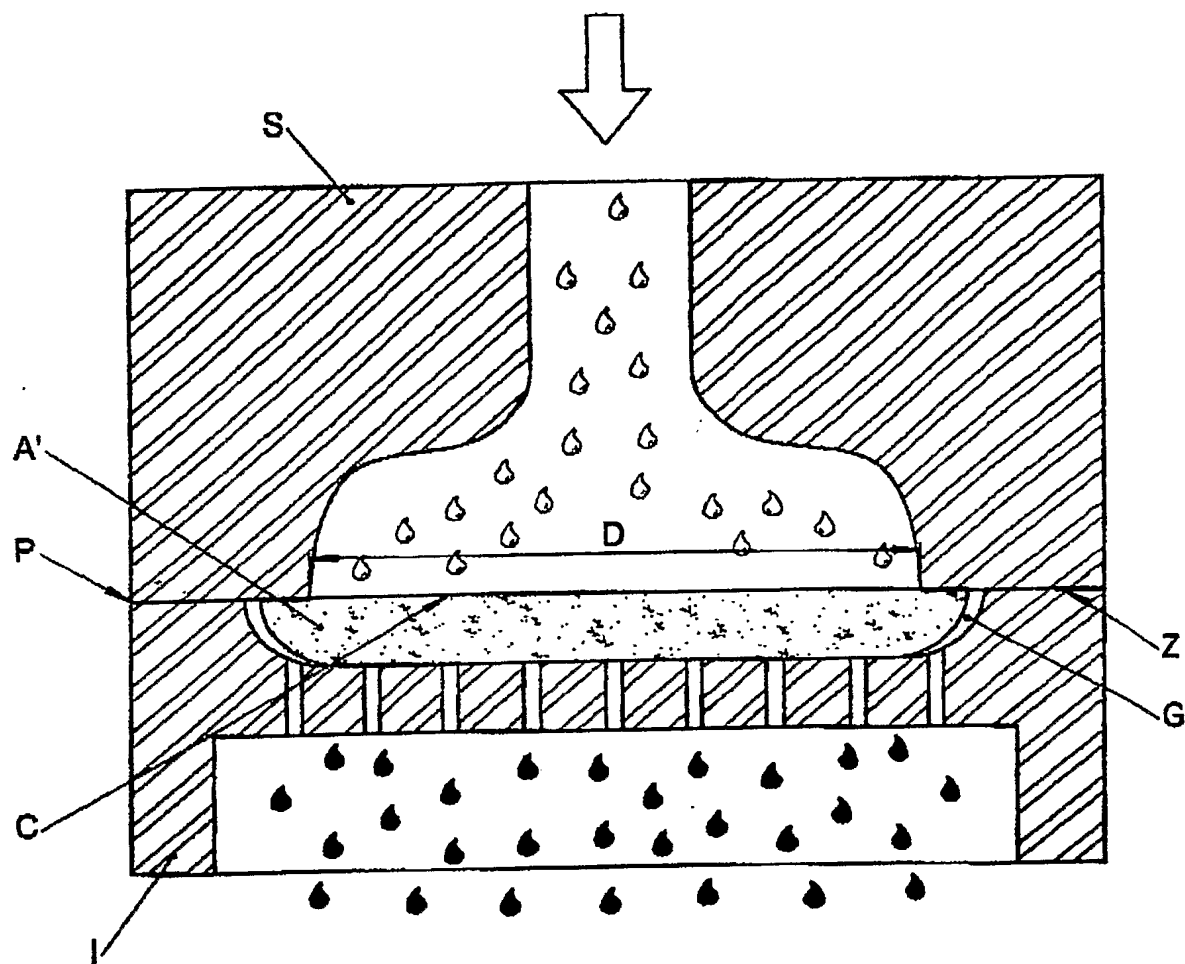


FIG. 4